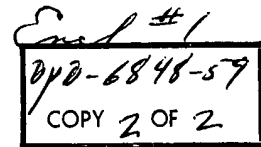


## GENERAL PRECISION LABORATORY

INCORPORATED

INTER-OFFICE CORRESPONDENCE



STAT

FROM \_\_\_\_\_ August 11, 1959

TO \_\_\_\_\_ AT \_\_\_\_\_

SUBJECT Report of Activities at the TDY Site

1. The following report is written for the period 22 July to August 11, 1959. During this period I was on TDY to a classified location. The contents of this document are based on the assumption that the reader knows the A/C type, location, organization, etc. By deleting these items, this report can be submitted without classification.
2. There are two PC-211 systems assigned to the organization. One of them is complete; the other one is missing 1 ea. frequency tracker. The systems were delivered about six months ago and had never performed satisfactorily. There was some dissatisfaction expressed by the customer. If a representative had been sent to location a few months ago, our problems would have been simplified, and the customer attitude toward the system would have been more favorable.
3. The first day was spent in the usual introductions and a visit to the shop area. An inventory of the test equipment and mock-up facilities revealed that there were no TS-117D, TS-118, or USM-24 at the location. A request for these test sets was made and the items were borrowed from neighboring locations. The organization had a request in channels for the test sets. They were received about three days prior to my departure. The Company-supplied test adapters and extension cables were lacking too, but the needed ones (FT test adapter, Bench harness and "J", and ART extension cable) were on hand. The organization received a shipment of the extension cables recently, and it is believed the ART test adapter is the only item still missing. One of the A/C racks was being used as a mock-up. One of my first steps was to set up a temporary mock-up using the bench harness & "J" Box. The mock-up requirement was discussed and a permanent test bench is now being constructed.
4. There is one technician assigned maintenance responsibility on the PC-211, plus other associated equipments. During a discussion of problems encountered in the past six months, he pointed out wiring errors in the low voltage power supply and Indicators. His first problem was a power supply failure. A replacement item was obtained from supply, but it applied about 90VAC to B-9001 in the Indicator, burning it out. This occurred in another power supply, but was noticed before any damage resulted. The cause was found in the wiring of T 4801. Pins 1 and 2 on T-4801 were apparently wired in reverse at the factory. The correction was to rotate pins 1 and 2 so that 26VAC excitation from pin 17 T-4801 was applied to B-9001 in the Indicator. The technician stated he had encountered problems in the Indicators. This involved both units received. When I arrived he had already rewired one of them and was working on the other one. It seems the drift pointer would not follow the L-R slewing. I never fully understood just what the problem consisted of, but all of the wires on MG 9002 seemed to be in error. I assisted him by rewiring the second Indicator. It is believed that both indicators are now wired as shown on the prints in the handbook and both of them are functioning correctly. There was not enough time to check the indicator that he rewired.

STAT

-2-

August 14, 1959

5. The first desire of the organization was to experience a successful flight. The status of all black boxes was unknown, so a complete system was selected and placed on the test bench. Since there had never been any satisfactory operation, it was decided that the complete system would need ringing out, as would the A/C wiring. The selected system was first checked out on the mock-up. During bench tests two problems were located and corrected. The first one was fluctuation of Tx power output. The problem was traced to the Driver Gate Card. The driver pulse output was intermittent. A new card was obtained from supply, but it was a PC-201 type and could not be used. The problem was corrected by exchanging the chassis with the other ART. The second problem was reverse wiring of the L-R switch (ART). The wiring of pins 1 and 3 didn't agree with the print in the handbook. Since there was a little better than 50-50 chance that the print was correct. The L-R switch was rewired as shown on the print; this turned out to be a proper move. Minor adjustments were made to the AFC and Mag. currents and all other bench tests were normal. The next step was to install the system in the A/C. Only one problem was encountered during tests on the A/C. The Rx sensitivity was zero. This was caused by an open IF cable between the ART and FT. There were no new IPC connectors available, so the old ones were salvaged and a new cable was constructed. This corrected the problem and all other tests were satisfactory. The Tx power output and Rx sensitivity were approximately +40 DMB and -90DBM.
6. The first flight was made on Wednesday, July 29. This flight was an excellent one. The expected values of Vg and drift were inserted during preflight tests. I also held a class for the Operators. The class consisted of a brief discussion on what to expect, operating techniques, etc. The Operator turned the system on after take-off and the next time he looked at it, the system was in Normal. The flight was about three hours long. Memory periods occurred only during pitch and bank angles of greater than 10 degrees (Approx.). Vg and drift accessories were very good. To assure the organization that it was working properly, I requested another flight. The second flight occurred on Tuesday, August 4. The flight conditions were the same and the results came out equally well.
7. During the period July 29 to August 4, OJT for the assigned technician was the prime concern. Actually OJT began on the second day of the TDY and continued for the total period. His OJT consisted of a block diagram course, plus an explanation of the peculiar circuitry. The technician has a very good knowledge of electronics. With concentration on OJT during this period, I believe he has obtained a good working knowledge of the system.
8. After the first system had completed its second successful flight, it was removed from the A/C. The next step was to get system #2 into operation. System #2 does not have a FT, so the FT was operated common to both systems. A similar procedure to that in paragraph 5 was used to ring out system #2 problems. There were several problems encountered here. They were:
  - a. L-R switch wiring error; b. A bad magnetron; c. IF preamplifier failure; d. Bad Rx xtals. The L-R wiring error was corrected as in para. 5. The magnetron was moding and a replacement corrected this failure. A replacement IF preamplifier was obtained from supply, but again this item

STAT

-3-

August 14, 1959

was a PC-201 part, not interchangeable with the PC-211 item. The IF preamplifier from system #1 was used as a replacement, and the driver gate card from system #1 was put back into system #2. When all these problems were corrected, the system checked out completely and was installed in the A/C. The A/C was scheduled to fly on August 7, but an urgent TOC was received, and the A/C was grounded. I departed the TDY site on August 11, and the A/C was still grounded. When the A/C will be operational is unknown. The technician assured me he would forward a report of the flight results as soon as possible.

9. On Saturday, August 8, I looked into the supply problem. There seems to be some problem of identification and assignment of Federal stock numbers. The Company part numbers seem to be correct, but when a Federal stock number is assigned, there is no difference in some cases between PC-201 and PC-211 parts. In several cases the identification or description is in error. I recommended that the Company part number and description be used for future requests.
10. From an overall picture the TDY is believed to have been successful and the revived interest and enthusiasm at the location seems to bear this out.